

# Pesticide Residues in the Homes of Farm Families

## Are pesticide residues getting inside farmers' homes?

Farmers use a wide variety of pesticides to help protect their crops and animals. Although children and other family members may not take part in farming activities involving pesticide use, they can still be exposed if residues are tracked into the home on shoes or clothes.

## Who was included in this study?

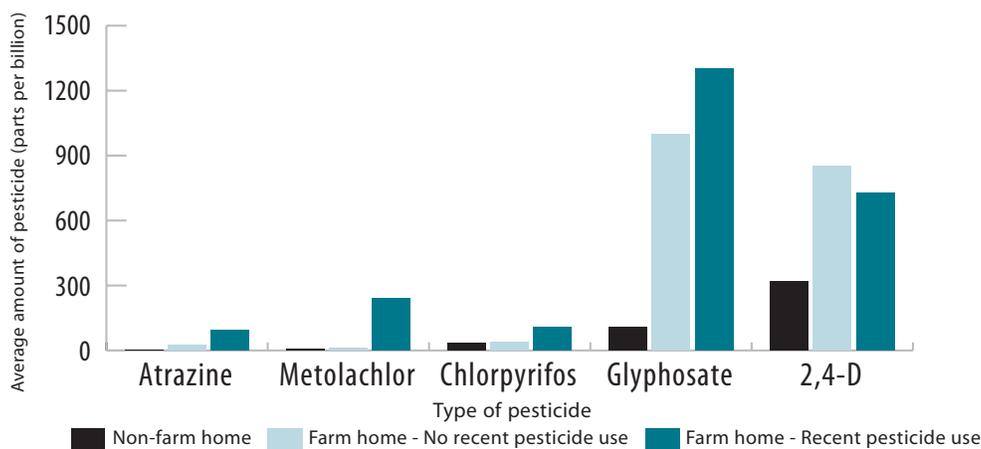
In 2001, researchers from the National Institute for Occupational Safety and Health, National Cancer Institute and the University of Iowa worked with a small group of families from the Agricultural Health Study to find out if pesticides were being tracked into their homes.

We visited 25 non-farm homes and 25 farm homes in Iowa. At some of the farm homes pesticides had recently been applied on crops or animals and at others not. Each home was visited twice in the spring. Farms where pesticides had been recently applied were visited shortly after pesticide spraying and again four weeks later.

During each visit, we collected dust from carpets and wipes from hard surfaces in the kitchen, entranceway, laundry area, changing area, living room, children's playroom, and children's bedroom. We also took air samples in the living rooms and outside the homes. We tested for six commonly used herbicides: atrazine, metolachlor, glyphosate, 2,4-D, acetochlor, and alachlor (acetochlor and alachlor were undetectable in most of our samples) and one common insecticide: chlorpyrifos.

## What did we find?

**Chart 1. How much pesticide residue was found in the carpet dust?**



Overall, chlorpyrifos, glyphosate, and 2,4-D, which are pesticides used in both residential and agricultural settings, were found in dust samples in most farm and non-farm homes (see Chart 1). In addition,

- Farm homes had higher amounts of pesticide residue in air, dust and hard surface samples as compared to non-farm homes.
- Pesticides were found more often in dust from carpets than in the air or on hard surfaces.



[www.aghealth.org](http://www.aghealth.org)

The  
Agricultural  
Health Study  
seeks to  
identify  
factors that  
promote  
good health.

**IOWA OFFICE:**

The University of Iowa  
100 Oakdale Campus  
Iowa City, IA 52242-5000  
1-800-217-1954

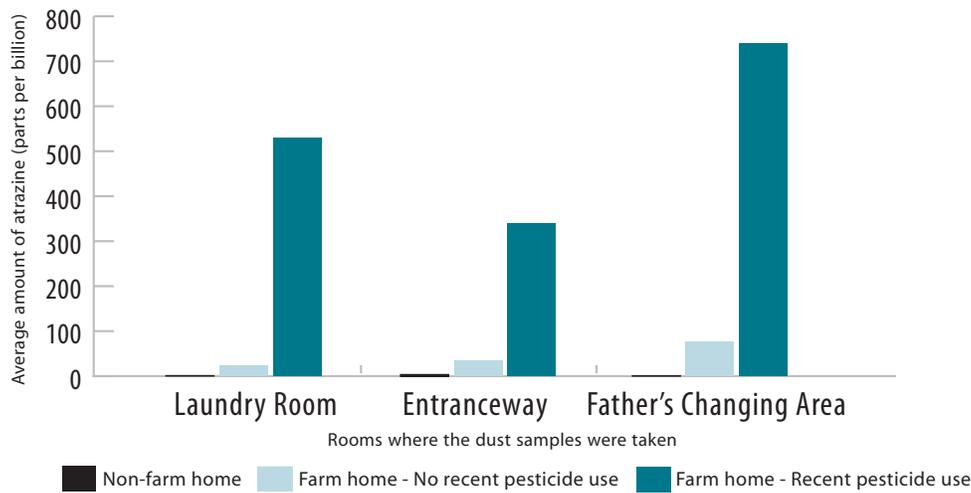
**NORTH CAROLINA OFFICE:**

Battelle  
100 Capitola Drive, Suite 301  
Durham, NC 27713  
1-800-424-7883

**COLLABORATING PARTNERS:**

Iowa State University Extension  
Iowa Department of Agriculture and Land Stewardship

**Chart 2. How much atrazine was found in each room?**



On farms where atrazine (see Chart 2) and metolachlor had been applied to crops, higher amounts of these pesticides were found in rooms where dirt was tracked in or where a farmer's outdoor clothes were left. Traces of these two pesticides were also found in the children's bedrooms and playrooms, though the levels were very low. Results for metolachlor were similar to those for atrazine.

## What should families do?

The levels of pesticides found in the farm and non-farm homes in this study are not a cause for immediate concern. Efforts to minimize exposures are desirable. Although long-term effects of low-level exposure to pesticides are not known at this time, young children may be more susceptible than adults to the toxic effects of pesticides because their organ systems are still developing. Also, they can be exposed to pesticides through contact with contaminated surfaces such as carpet dust.

Family members can reduce pesticide exposure in the home by:

- Removing work clothes in an area away from the rest of the house, and washing them separately from the other laundry.
- Removing work shoes and boots before going into the house.
- Vacuuming the carpets and clean the floors on a regular basis.
- Closing all the windows and doors in the house during pesticide spraying.
- Keeping children and pets inside when applying pesticides, and not letting them play in pesticide-treated areas until the label-specified reentry times have passed.

More details about this study (Curwin et al. Pesticide contamination inside farm and non-farm homes) can be found under "Publications" at [www.aghealth.org](http://www.aghealth.org).

The Agricultural Health Study is a long-term study to investigate the effects of environmental, occupational, dietary, and genetic factors on the health of the agricultural population. This study will provide information that agricultural workers can use in making decisions about their health and the health of their families. The study is conducted in Iowa by the Department of Epidemiology at the University of Iowa and in North Carolina by Battelle CPHRE. The study is directed by the National Cancer Institute, the National Institute of Environmental Health, and the US Environmental Protection Agency.

**Michael C. R. Alavanja, Dr. P.H.**  
Project Officer  
Occupational and Environmental  
Epidemiology Branch  
National Cancer Institute  
Executive Plaza South, Room 8000  
Rockville, MD 20852

**Aaron Blair, Ph.D.**  
Assistant Project Officer  
Occupational and Environmental  
Epidemiology Branch  
National Cancer Institute  
Executive Plaza South, Room 8118  
Rockville, MD 20852

**Dale P. Sandler, Ph.D.**  
Chief  
Epidemiology Branch  
National Institute of Environmental  
Health Sciences  
111 T. W. Alexander Drive  
P.O. Box 12233  
Research Triangle Park, NC 27709

**Jane Hoppin, Sc.D.**  
Epidemiology Branch  
National Institute of Environmental  
Health Sciences  
111 T. W. Alexander Drive  
P.O. Box 12233  
Research Park Triangle, NC 27709

**Kent Thomas, BSPH**  
Team Leader, AHS Pesticide  
Exposure Study  
National Exposure Research  
Laboratory  
US Environmental Protection Agency  
MD 205-04  
Research Triangle Park, NC 27711

EDC 0364  
AHS-IA-2007-2

